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@Radio Club of Tacoma

ARRL & RCT Elections are over, results are in!

As most of you are probably by now aware, one of the biggest election cycles in recent ARRL memory is behind us. The past couple of years have been contentious at The League, oftentimes involving hot-button topics. Proposals and legislation regarding ARPA (Amateur Radio Parity Act) and HOA restrictions of amateur radio antennas, “gag order” rules put in place to keep ARRL Board members from discussing their decisions, and other issues all led to a pretty heated election season. And not just for us in the Northwestern Division, but around the country as well.

At the RCT General Meeting in September, Northwestern Division Director Candidate Mike Ritz W7VO came to present his platform and ideas during our presentation hour, and, in fact, gave a great presentation. The next month, October, Bonnie Altus AB7ZQ similarly came to present to our club. Both gave interesting and compelling presentations of their case and why they should be elected. But in the end, there can be only one winner; and in the case of our Northwestern Division, Mike Ritz, indeed, won the election with 1589 votes over Bonnie’s 1308. A third candidate, Horace Hamby (isn’t that just a perfect ham radio surname?) N7DRW, received 495 votes. He never reached out to present as the others had done.

The position of Northwestern Division Vice Director was a bit closer, with winner Mark Tharp KB7HDX receiving 1368 votes against runner-up Daniel Stevens KL7WM pulling in 1228. A third contender, longtime SEA-PAC coordinator Delvin Bunton NS7U received a respectful 767 votes. Both Mike Ritz and Bonnie Altus had advocated Mark Tharp for Vice Director, so it seems we will now have some excellent teamwork in their representation of the Northwestern Division of the ARRL. Congratulations to all who won positions, and a big thanks to all who took the time and effort to run. I really look forward to seeing how the future of the ARRL evolves in this era of contentious issues and the changing face of Amateur Radio as a whole in this country.

To see a full accounting of all the various ARRL positions up for grabs this cycle, and who all were elected, just take a look at this [\[ARRL LINK\]](#). Here at home, at the Radio Club of Tacoma, I want to thank the 99 members who took the time to complete and return a ballot in our own recent election cycle. Four positions were up for election: President, Treasurer, and two Board of Directors positions. All four ran unopposed, all as incumbents. Thanks for your support in reelecting me to the position of President, Steve

THE PRESIDENT’S CORNER



DAVE W7UUU

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Thanks to everyone who helped make this a great newsletter by contributing pictures and articles. It would not happen without your support.

Thanks,

P. J. H. N7PH editor

Dightman to Treasurer, Red Cranefield and Phil Pia to return for another term on the board. I had to laugh that when the ballots were counted, I had received 98, with a single "write in". I learned not long after that the individual who did this didn't want me to get a "grand slam" and wanted to keep me humble! Well, you have my word and I'll honor your desire! I promise to remain the humble guy I always try to be. But the vote certainly put a smile on my face.

Please give some thought over the coming year and maybe consider running for a position yourself! Competition is healthy for an organization such as ours. Other than perhaps Treasurer and Secretary, there's not a huge burden in the "work load" side of things, and new ideas can often really make a difference. It would be ideal in every election cycle to have at least two candidates for every position, and I know there are a lot of talented and able members who would make excellent club officers in future elections. But thanks again to all who took the time vote, despite all positions being shoe-ins. It's nice to know people care enough to vote even if there's no competition.

So that's it for now – I wish everyone a safe and enjoyable Thanksgiving holiday with your families, and look forward to seeing all my good friends and fellow members at the Annual Awards Banquet on Sunday, December 2nd from 1:00 to 3:30 (or so) at the South Tacoma Eagles Club at 70th & South Pine street.

Dave

W7UUU

Scouting Camporee - 2018

By: Steve Dightman, AF7YD

On October 19-21 Radio Club of Tacoma provided three activities to the scouts from the local Pacific Harbors Council Camporee. On Saturday Steve Blacksten, AD7VL provided the Jamboree-On-The-Air (JOTA) HF station. Mike Drobough, W7MKE led the Fox Hunting initial training activity. And I worked with the scouts to learn-to-listen to Morse code. All the scouts spent about 30 minutes in each of these activities designed to introduce them to some hands-on aspects of Ham Radio.

On Sunday morning, W7MKE and AF7YD put on a "real" fox hunt with two foxes located deep in the forest. There were about 10 participants, and with a little coaching from Mike, all were successful in locating both foxes. All these fox-hunting kids were quite enthusiastic about their experience. I asked Steve B and Mike to send me a short report highlighting their experience. The accompanying pictures will also help tell their story.

From Steve Blacksten, AD7VL

On Wednesday, October 17, 2018 Steve Dightman AF7YD and I visited the Ski Park Lake site near Orting, WA and shot a 95' long wire antenna into a tree approx. 80' high to form a sloper antenna with seven 25' tape measure radials. On Friday, Oct. 19, a HF station was assembled with an IC706MKIIG rig having HF/VHF capabilities. Early Sat., Oct. 20th, groups of 6-9 Boy Scouts arrived at our station to be introduced to amateur radio. Different subjects were highlighted as about 120 scouts made their way to our station manned by Mike Elwell W7GHW and myself. We contacted seven JOTA stations on 20, 40, 80 sideband and 2 meters FM, explained the basic requirements to become a ham, and touched on Morse code.

One of our best sessions was late in the day when we contacted a group of scouts in southern Idaho who were on a week long outing using a portable station like ours. Each of the scouts in our group was able to talk on the air, giving their name, age and home location. While several other stations were encountered, this was a highlight.

Thank you, Steve, Mike, wife Sharon, along with scoutmasters and staff, for your support.

From Mike Drobough, W7MKE

On October 20 and 21 members of the Radio Club of Tacoma assisted the Boy Scouts in their Codes and Signals training by setting up three stations dealing with different aspects of Amateur Radio. At one station, scouts were shown Morse Code signals. The scouts then had the opportunity to see a working radio station. Antennas capable of communicating on several Amateur Radio bands and transceivers were employed to make wireless contacts both near (a local Forest Service contact) and far, contacting other amateurs in Yakima and Moses Lake, Washington. Finally, scouts had the opportunity to try their hand at Amateur Radio Direction Finding. Using handheld antennas and handheld radios, the scouts tried to locate hidden transmitters. As might be expected, interest in the activities was mixed with some scouts being very interested in the various activities and others barely able to remain awake during the instructions and demonstrations. Finally, opportunities to learn more were presented with invitations to visit the Radio Club of Tacoma's club house on Saturdays or to enroll in a beginning electronics and radio class to be held in the near future.

73's Mike, W7MKE

From Steve, AF7YD

At the code table I had a most interesting experience listening to the scouts sharing stories about learning code and their encounters with ham radio. Of the 100+ scouts, there were about five who showed an exuberant interest in ham radio and seemed like they would like to pursue more.

A note of appreciation.

A big smiling shout-out goes to Sharon Blacksten who pitched in with food preparation, assisting the Scout Leadership Team, and other activities to help the camp operation run smoothly. And also to the many who loaned their 2M tape measure beams, Offset attenuators and Hand-Held Radios. Without this extra equipment, there would not have been enough equipment to conduct a scouting-hands-on fox hunt. To Mike Finnie W7MWF, Mike Elwell W7GHW, Jim Hansen AG7LO, Red Cranefield WB7EC, Dick Marsden N7RHV, John Marsden KI7RC, Steve Morton AD7AB, John Simms KI7SCP, Rich Patrick KR7W, Peter AD7EU, Stan Nelson K7DKK (Pierce County ARES EC), Paul W7PFU, and Bob Heselberg K7MXE; a BIG THANK YOU!

And of course to Steve Blacksten AD7VL and Mike Drobough W7MKE for their leadership roles in working with the scouts.

AND we received numerous conversations of appreciation from the scouting leadership for our (RCT's) participation with the Camporee.

73's, Steve AF7YD

See Pictures below.

On Left is Mike Drobough, W7MKE and right is Steve Dightman, AF7YD preparing equipment for the Sunday Morning Fox Hunt. In the Center Holding the sign is RCT member Steve Shumaker, K7DFC. Steve Shumaker is also a Scouting Senior District Executive for our local Pacific Harbors Council.



2018 Boy Scouts CAMPOREE pictures tell the story of success.



Steve Blacksten, AD7VL leads a group of scouts at the Jam-boree On The Air station. Mike Elwell, W7GHW in background right, assisting.



Radio Club of Tacoma's campsite showing JOTA station long wire antenna from pole into a very tall tree. Antenna tuner at base of pole, with tape measure radials.



Mike Drobaugh, W7MKE explaining the operation of Fox Hunting Beam, Offset attenuator, and hand-held radio just prior to the scouts hunting the fox on Saturday.



Scouts, on their own, not seeking the fox. The fox was located into the forest just beyond the clearing.



. Steve Dightman, AF7YD at the Morse Code table leading the scouts learning to listen to the sound of the letter, then write the letter. Previous experience by many scouts is to try to learn Morse Code from books using the words Dot and Dash; not very helpful when using radio signals.



AY7YD pairing radios with beam-attenuators on Sunday morning. The Fox hunters will be arriving in a few minutes.

RADIO CLUB of TACOMA'S ANNUAL AWARDS BANQUET AND HOLIDAY PARTY

An annual Awards Banquet for members and their guests is held every December. The Awards Banquet is always an enjoyable social event, as well as an opportunity to publicly recognize and express appreciation for those members who have helped to advance the purposes of the Club.

2018 AWARDS BANQUET

This year the banquet will be held Sunday December 2, from 1PM to 4PM, at the South Tacoma Eagles Club Aerie #2933, 7037 South Pine Street (S 72nd and S Pine). **NOTE: this is not the Eagles Aerie where we hold our general meetings**, although it is not far away from that location. Here's a [map](#).

For our meal, Radio Club of Tacoma will provide sodas and a main course. Other dishes will be pot luck.

Please SIGN UP for pot luck: signup sheets are in the Clubhouse and will be circulated at the Annual Meeting on Nov. 3. If you can't get to a sign up sheet, please email your intended contribution to Chef Paul, w7pfu@w7dk.org.

ARRL elections for Division Director and Vice Director

Mike Ritz, W7VO (who introduced himself at one of our recent Club meetings) was elected Northwest Division Director. Mark Tharp, KB7HDX, was elected Northwest Division Vice Director. They will take office at noon on January 1, 2019.

For Northwestern Division Director (3392 votes total, vs 2844 cast in 2015)

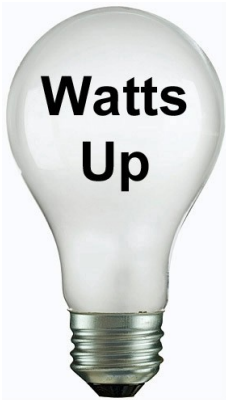
- Mike Ritz, W7VO 1,589
- Bonnie Altus, AB7ZQ 1,308
- Horace Hamby, N7DRW 495

Northwestern Division Vice Director (3363 votes total, vs 2837 cast in 2015)

- Mark Tharp, KB7HDX 1,368
- Daniel Stevens, KL7WM 1,228
- Delvin Bunton, NS7U 767

Participation in the Northwest Division improved by roughly 19% over the last election.

<http://www.arrl.org/news/arrl-director-vice-director-election-results-announced>.



My Adventures in Building An Arduino Dummy Load & Digital Watt-Meter

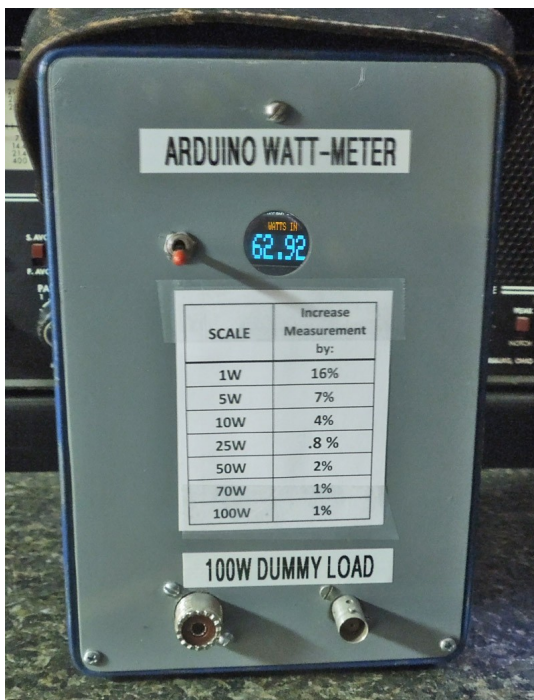
by Rich KR7W

The current project on my workbench is the restoration of an old, circa 1951, Novice transmitter from the Chehalis Hamfest that was rescued from the 'If it doesn't sell- then it's going to the scrap pile', collection. The project is coming along to the point where I need to measure transmitter RF power output. I have two watt meters- an old MFJ that is broken and another ancient digital meter that is unreliable and inconvenient to use.

Wouldn't it be nice to have a watt meter like the W70S Museum uses? A self contained high power dummy load with a meter on the front panel that directly displays the measured power. And... with a bonus handle on top to easily move it from shelf to bench and back.



"Looky there", on the cover of the November 2018 QST magazine is a DIY project, "Watts Up- Build this Dummy Load / Wattmeter". This article professes it's easy to build your own watt meter using the popular Arduino microprocessor.



Old RCA Volt-Ohmmeter with leather carry strap on top becomes a Grab N Go Power Meter.

The nicely written article by Dr. Jack Purdum W8TEE and Al Peter AC8GY creates a 150 watt dummy load- Heathkit CanTenna like- using many resistors in a network to create 50 ohms inside of a paint can filled with oil to displace the heat. The wattmeter part consists of a diode circuit to create a DC voltage from the RF power across the dummy load. The DC voltage is fed into the Arduino microprocessor that acts like a volt meter that performs the complex math to calculate watts and sends the result to the small but easy to read OLED display.

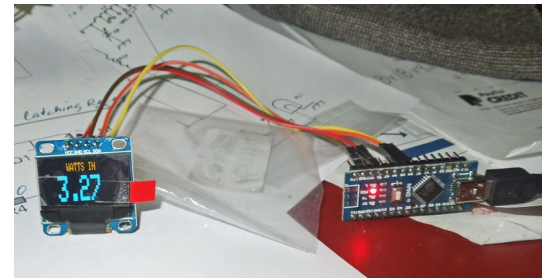
I've built a few simple ham electronic projects from Arduinos before: a motion detector circuit that plays a sound file and a Winkeyer PC to Rig interface for CW contesting. So why not a \$3 Arduino and \$5 OLED display and a bunch of resistors to make a RF Power meter?

The QST article uses 20 each - 1000 ohm resistors rated at 3 watts. Wire the resistors in parallel and the resultant resistance adds up to be 50 ohms at 60 watts. Since they are in the oil filled paint can the authors claim the rated power is now 150 watts. The Arduino Microprocessor is programmed to display up to 150 watts.

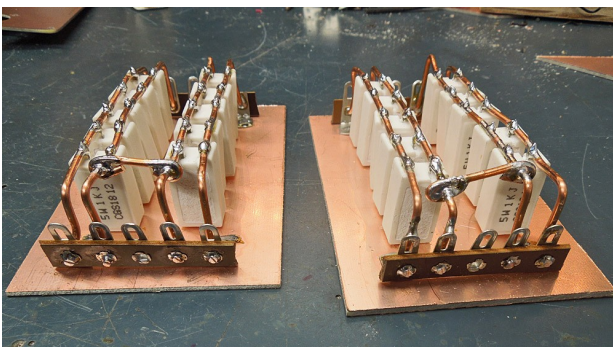
For my project I wanted the convenience of a Grab n Go self enclosed **DRY** watt me-

ter (**no can of oil**) like the W7OS Museum has. I had been saving an old 1950s RCA volt-ohmmeter I found on the clubhouse free table. The guts had been removed which left an optimum sized metal box with a leather carry handle on top. A new front panel was fabricated from blank copper clad printed circuit board material.

For me, the most challenging part of Arduino projects is programming the Arduino microprocessor, Also known as "uploading the sketch". The QST article sends the reader 'on line' to download the detailed build article and the Arduino Sketch to import into the IDE- which is the PC program to interface with the Arduino microprocessor board. After some bumbling I was success-



First Step: Get the Arduino [R] and the OLED dis-play to work.



1K ohm resistors soldered to #12 copper wire to create 10 resistors in parallel on each copper plate. This combination of resistors should handle 100 Watts.

ful and then encouraged to take the next steps; build the dummy load resistor network.

My dummy load loosely copies the QST article. I ordered 20 1K resistors but rated at 5 watts each. These resistors create a 50 ohm load rated at 100 watts. Using more copper circuit board material- the resistors were wired and soldered into a matrix with space in between for heat dissipation. The circuit boards were soldered to the front panel to house the resistors and create a shelf for the electronics. After soldering it all together then the 1 inch LED display was hot melt glued to a 3/4" hole cut in the watt meter's front panel. Coax jacks and off-on switch are also included on front panel.

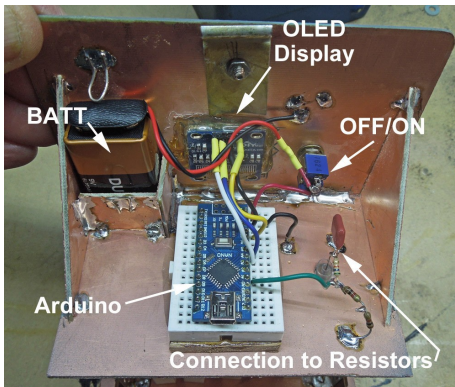
Once the wattmeter appears to work then it's time to calibrate it per the QST article. Use a known good wattmeter and compare it to the Arduino WM, it says. Since my wattmeters are not trustworthy I used my oscilloscope to measure the AC voltage across the 50 ohm dummy load from my 'up to 100 watt' Elecraft transmitter. Lucky for me that the O'scope displays in RMS AC volts and the RF Power in watts is calculated using Ohm's Law: Power in Watts equals E squared divided by R. Example: O'scope measures 55 Volts times 55 Volts equals 3025, then divided by 50 ohms equals 60.5 watts.

Different power levels were tested: 1/2W, 1W, 5W, 10W 25W, 50W, 70W, and 100W and the accuracy was checked. It turns out that the lower the power measured the more inaccurate the power meter becomes. A 'calibration factor' chart was created and taped to the Power Meters front panel. At power levels 10W and higher- this power meter is more accurate than the defacto standard Bird 43 Thru-Line wattmeters (plus/minus 6%) used in commercial radio.

SCALE	Increase Measurement by:
1W	16%
5W	7%
10W	4%
25W	.8 %
50W	2%
70W	1%
100W	1%

The QST article goes into detail how to change values in the Arduino sketch to calibrate

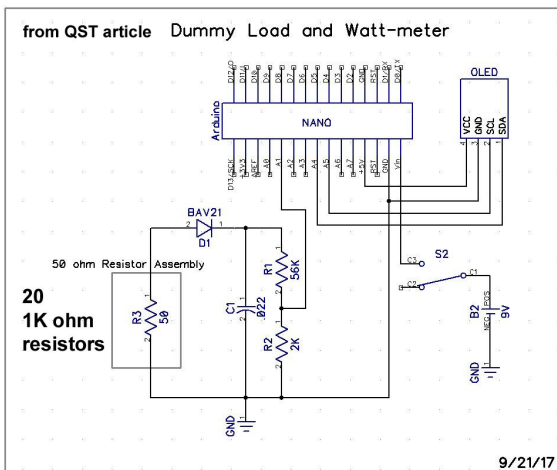
the new Watt Meter to match the reference WM. This procedure was performed three times before proclaiming, "It's close enough!"



Now that the project is finished... **What would I do differently?** I wish I would have ordered resistors with longer wire leads on them to create a better mechanical connection to the buss that connects them in parallel. Smaller gauge buss wires would have made wiring a bit easier.

What worked well building this project? It was fun repurposing the old voltmeter case. Figuring out how to use blank copper clad printed circuit board material to fit the case and house the parts.

It's important to remember that this device does two things: It's an HF + 6 Meters Dummy Load you can test your transmitter with and not cause interference out over the air waves. If an RF power reading is needed then it gives a fairly accurate reading in Watts as a bonus.



Dummy load SWR Readings:

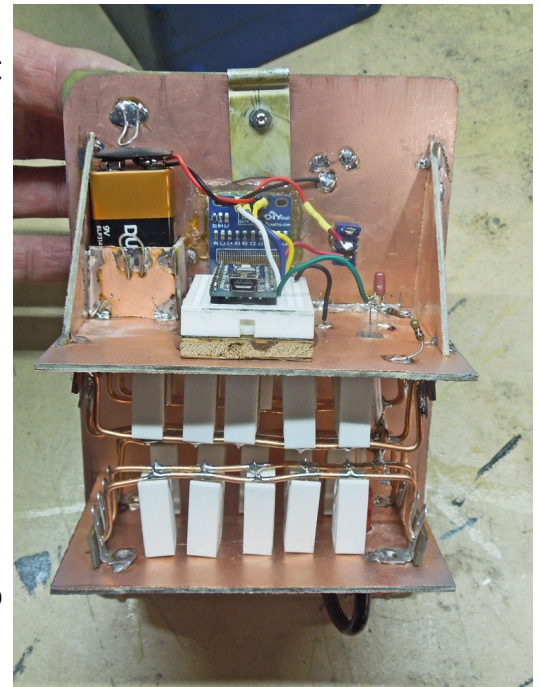
1.6 to 30 MHz = 1.1

52 MHz = 1.5

146 MHz = 5.0

(Unusable).

If anyone needs help with building your own version of this project see me at the Clubhouse. I'm there most Saturdays.



Thanks for reading this far. Rich KR7W

Left top + bottom images: Not too many parts are needed to create the Watt Meter part of the project.

Above image: The proto board that the Arduino is plugged into is isolated from the copper PCB by a 1/4" piece of plywood. Epoxy Glue holds it all to-gether. Normally I'd use Hot Melt Glue— but since the Dummy Load resistors produce a fair amount of heat— Epoxy will hold it all together better.

A Short History of Solder Bob Heselberg, K7MXE

Prior to the big push for leadless solder in the 1990s, probably 99% or more of the solder used by industry, tradesmen, and hobbyists contained lead. The [60/40 Sn-Pb](#) (and 63/47) alloy, both with and without a rosin core, was used for electrical work, electronics, plumbing, copper guttering, radiators, and many mechanical assemblies made of steel, brass, copper, tin, etc. Between World War I, "The War to [Not] End All Wars," and World War II, the electronics industry exploded in growth. All realms of society and government became utterly dependent on products assembled using solder. Both tin and lead were abundantly available, making it inexpensive. Properties of Sn-Pb solder were well known, and methods for its use were simple. At the breakout of WWII, America's main source for tin was a group of countries under the control of Japanese forces. As with a lot of other resources during wartime, tin was regulated and metered out by the government. Alloy makeup was reduced to 16/84 for sale to civilian users, which significantly decreased the strength of solder joints and complicated assembly efforts.

Wartime Solder By E. M. Kolman

Rosin-core solder as used by radio men is an alloy of tin and lead. No one ever bothered to think about the sources of supply on tin as long as it was possible to purchase a roll of solder with little effort. Now that tin is a strategic metal, many are asking, "Don't we have our own tin mines?" The answer is "No." Over ninety per cent of our tin came from Malaya, Burma, Thailand and the Dutch East Indies and, as everyone knows, the Japanese are now in full possession there.

"What about the fabulous Patino Tin Mines in Bolivia and the new tin smelting plant at Texas City, Texas?" Bolivian tin ores are second rate and they must be mixed with a first-grade ore before they can be smelted economically. The Texas City tin-smelting plant has just begun operations and it is questionable if it will ever be in a position to furnish us with tin for civilian consumption. As it is, it will produce just a small portion of our war requirements. In fact, how well it can do that will depend upon our ability to allocate ships to transport the ore from the Bolivian tin mines to our new smelting-plant.

"Is it possible to solder with lead alone?" The answer is no. Tin in itself is a solder that will "wet" or alloy with other metals. Lead when added to tin triples the strength of the solder, lowers its melting point, makes it easier to handle and lowers the cost of the solder; yet lead by itself will not wet other metals and so lead by itself is not a solder.

"What about substitutions for tin?" Cadmium, bismuth, indium and silver have been suggested.

Cadmium may be alloyed with lead for soldering purposes but at the moment cadmium is a "critical" metal and very much in demand for plating implements of war.

Bismuth like lead is no solder. It is used to lower the melting point of solders, but the more bismuth used the more brittle and porous the joint becomes.

Indium may be used for soldering but just now the price of \$12.50 an ounce is a rather steep price.

Silver-lead solders, especially an alloy of 2 1/2% silver and 97 1/2% lead is being used as a substitute for tin-lead solders. This alloy compares favorably in price with tin-lead solders but unfortunately for the radio man it is difficult to use with a soldering-iron.

The radio man with his 50-, 60-, or 100- watt iron will find this solder sluggish because of its higher melting point, 580°F. It will require a 150- or 200-watt iron and even then the continued use of the iron is difficult because the faces of the iron oxidize readily with so much lead in a solder.

The Tin-Lead branch of the WPB has ordered all solders for civilian consumption to be reduced to 16/84, that is, 16% tin and 84% lead. This solder can be used successfully by the radio man with a 150- or 200-watt iron. A resourceful radio man may not have to be without solder because it is possible to make his own. Prior to the outbreak of war all shaving-cream toothpaste and salve tubes were made of almost pure tin. Tinfoil used as food wrappers, tinfoil from old radio condensers (beware aluminum foil), tin bearings from connecting rods and pewter ware may be alloyed with lead to make solder.

To make strip solder melt your scrap in a ladle and pour it on either an iron or marble surface. If you plan to add tin to your lead, melt the lead first and add the tin.

A solder containing as little as 5% tin and the balance lead is preferable to any silver-lead alloy for radio use.

September 1942 Radio-Craft

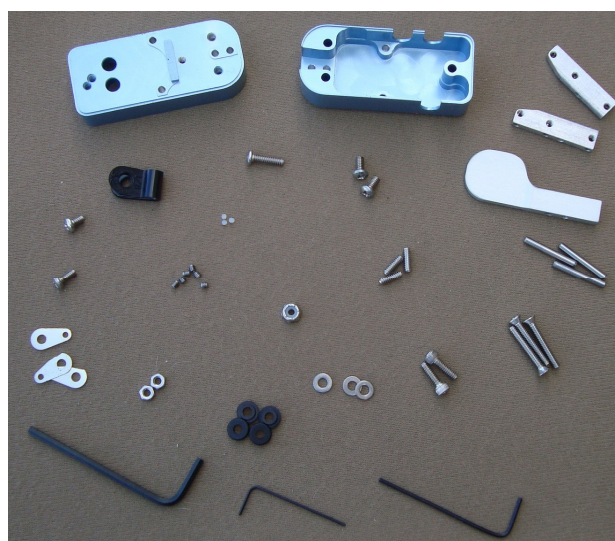
RCT WINTER SALE, NOV -DEC 2018

	PRICE	RCT #
1. Millen Grid Dip Osc.	\$150.00	3819
2. Tube Tester Meter	\$ 10.00	
3. Meter Tube Tester Jewel	\$ 10.00	
4. Heath Clock GS-1000	\$ 150.00	3706
6. Hallicrafter S-38A Receiver	\$ 30.00	3821
7. ICOM 440 mobile XCVR IC-410	\$ 50.00	3519
11. Kenwood HF XCVR TS-450	\$ 300.00	3389
12. MFJ Ant Tuner MFJ-986	\$ 200.00	3825
14. W2THY Memory Keyer	\$ 20.00	3759
15. Gonset 6 MTR XCVR COMM 3	\$ 40.00	3637
16. Gonset HF SSB TX GSB-100	\$ 100.00	3866
18. Yaesu HF PWR AMP FT-2100B	\$ 400.00	3827
20. ICOM HF XCVR IC-725	\$ 200.00	3810
21. Dentron Super tuner	\$ 75.00	3646
22. wooden speaker	\$ 10.00	
24. Kenwood Microphone MC-80	\$ 60.00	3393
25. Kenwood XTAL Filter YG-455C-1	\$ 75.00	3844
27. Battery Charger AT-5000	\$ 30.00	3778
28. Heathkit Audio Generator IG-5218	\$ 25.00	
29. Shure Microphone	\$ 30.00	3363
35. EICO HF XCVR 753/ with PS	\$ 100.00	3867
38. ICOM UHF ALL MODE XCVR IC-471A RX OK, TX-0	\$ 150.00	3830
41. Suitcase with Tektronix scope camera	\$ 100.00	
42. Tekronix Oscilloscope 422	\$ 50.00	3849
43. Tekronix Oscilloscope 547	\$ 50.00	3850
44. HP VHF Signal Generator 608E	\$ 50.00	3851
48.—52 Yaesu HF XCVR FT-101E -5 items	\$ 300.00	3854
49. Yaesu VFO for FT-101 p/o 48		3855
50. Yaesu 6 mtr transverter p/o 48		3856
51. Yaesu phone patch p/o 48		3857
52. Spectronics Digital Display DD-1 p/o 48		3858
53. Drake XCVR TR-4	\$ 225.00	3859
54. Drake power Supply AC-3 p/o 53		3860
56. HP Frequency counter 5230L	\$ 75.00	3868
57. Triplet VOM 360	\$ 100.00	3869
58. Kenwood HF XCVR TS-450S SN: 41200236	\$350.00	3872
59. Kenwood HF XCVR TS-520SE SN: 732164	\$200.00	3873
61. Drake HF RX R-4C SN: 18647	\$ 100.00	3875
62. Drake HF XCVR TR-4 SN: 27035	\$ 100.00	3876
63. HP Signal Gen. 8640B SN: 1350A01429	\$ 250.00	3878
64. HP Signal Gen. 8640B SN: 1341A01172	\$ 250.00	3879
65. ATO Interstate log sweep gen. F77 SN: 941	\$ 75.00	3880
66. Kenwood HF XCVR TS-520 SN: 40587	\$200.00	3881
67. Kikusui COS Oscilloscope 6100M SN: 4041791	\$ 150.00	3882
70. HP Frequency Counter 5328A SN: 2248A56070	\$ 100.00	3885

71. Non-Linear Systems mini-scope MS-215	SN: 8314	\$ 30.00	3886
72. Leader Bench power supply LPS-152	SN: 2030113	\$ 100.00	3887
73. HP TRUE RMS METER 3403A	SN: 1223A00525	\$ 50.00	3888
74. Tektronix Storage scope/5-plug-ins 7834	SN: 8034906	\$ 150.00	3889
75. Hammarlund HF RX Model SP-600		\$ 50.00	3890
76. Kenwood HF XCVR TS-440S	SN: 10600037	\$300/77-\$350.00	3891
77. Kenwood Speaker SP-230	SN: 11100053	\$ 60.00	3892
78. Diawa 300 watt Ant tuner	SN: E10008	\$ 90.00	3893
79. Singer Com Service Monitor CSM-1	SN:292	\$ 30.00	3896
80. Yaesu HF XCVR FT-757GX/mic/mb	SN: 4H110753	\$300/83-\$350.00	3897
81. Yaesu VHF XCVR FT-2900/mic	SN: 2D400129	\$ 100.00	3898
82. Astron Power Supply RS-20A	SN: 20140203	\$ 30.00	3899
83. Tigertronics Signal Link USB-8R (Yaesu cable)		\$ 75.00	3900

As always, the items listed can be viewed on Saturdays or at any time there is a PMT representative around the clubhouse. Missing line items/numbers are a result of items being sold or taken off the list at the discretion of the PMT. Items in **RED** are newly discounted and listed in the **WINTER SALE**.

American Morse Equipment Mini-B Single Lever/Sideswiper Paddle Kit



American Morse Equipment makes a line of miniature keying devices that appeal to CW operators who operate portable such as on SOTA and POTA outings. While I do not personally use one I have modified several for friends. As a lifelong hobby machinist I can attest to their quality and flawless operation. The second sentence in their instructions warns " PLEASE NOTE: This kit contains some VERY small parts! You will need tweezers and perhaps a magnifier to assemble this kit!", as seen above. Do not let this deter you however, as the assembly is quite straight forward and easy. Simply use care and focus. The current kit cost is US\$95.00 plus US\$4.00 shipping, CONUS, or US\$139.00 assembled plus US\$4.00 shipping. <https://www.americanmorse.com/minib.htm> . Some of the features are; Small size, 2.5 oz., 3.25" x 1" x 1" - CNC machined from Aircraft Aluminum—Stainless steel fasteners throughout—Many accessories—Lifetime Unconditional Warranty. Comes in blue or red anodized colors.

By P. J. Hicks, N7PH, editor

Around the Clubhouse... by Rich KR7W

Repeater Work Successful

The Patient Survived the Procedure

Quick History Lesson: More than a year ago the Club's 147.280 repeater experienced signal reports of, "You are all scratchy" or "Your not making it into the repeater"... and so on.

The problem was diagnosed as the Receiver being Deaf.

It had lost its ability to receive weak signals. My experience with Google is that it can be pretty helpful to diagnose medical problems and provide some remedies. It's not much different with diagnosing General Electric MASTR II receive issues. It was figured out that the Helical Resonator Cavity in the repeater's



Jimmy K7SSS adjusting receiver Cavity.

receiver had "Tin Whiskers" - where metal hairs form between the aluminum and copper components inside of a cavity. The purpose of the cavity is to filter out un-wanted signals coming in off the antenna. Kind of like an antenna tuner of sorts. In this case the filter was killing the desired signal by a large amount. To provide a quick fix, the filter cavity was bypassed. Now the receiver works better but not as optimally as it should. No wonder those Handy Talkies with short antennas cant talk through the repeater.

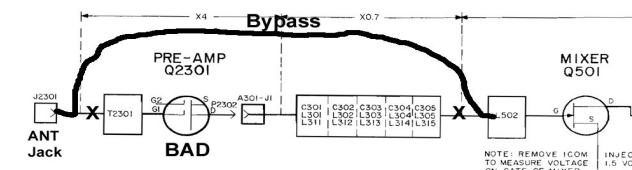
Just last week Club members Jimmy K7SSS and Rich KR7W took the re-

peater out of service

to do a Resonator Cavity Transplant. Jimmy was called upon to help with this procedure because he used to work for a General Electric Mobile Radio shop and has a lot of experience with this radio. A donor was selected from a box of surplus parts by testing it's filtering characteristics using the IFR Mobile Radio Service Monitor test set. But before the transplant began, Jimmy wanted to test the defective cavity still residing in the patient. Yes- the heart isn't pumping very well; there is quite a bit of extra loss seen. A couple of adjustments were performed on the tuning capacitors and the cavity looks good with just a small amount of extra loss.

It was decided to not replace the original defective cavity- but instead perform some other adjustments using the IFR test set. Jimmy was successful in improving the receiver sensitivity by 20 dB. For those not familiar with decibels- that is an improvement of X100. It was also found that the Receive Frequency was off by 2 KHz, or 2/5ths of the channel width. Handy Talkies with small ineffective antennas will now have an easier time accessing this repeater and their audio sounds much better.

The transmitter tested good- correct audio modulation and was on frequency. The receiver still needs work, as the RF PreAmp module tests BAD. Repeater group members are looking for a replacement unit, but so far without success.



Drawing from GE manual shows the Resonator cavity by-pass procedure. The Pre-Amp must also be by-passed. Turns out that the PRE-AMP is also defective.



IFR shows bandpass width of Cavity Filter.



Amateur Radio Emergency Service (ARES)
Western Washington Section
District 5, Pierce County ARES
www.PierceCountyARES.net



Greetings,

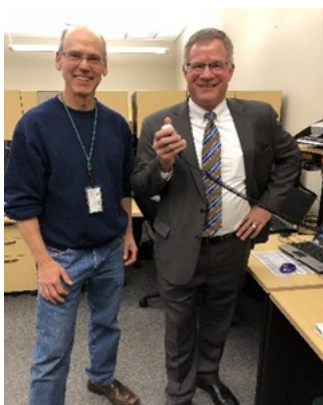
ARES articles provide information about amateur radio emergency communications, and Pierce County District 5 ARES activities and events. Amateur Radio Emergency Service (ARES) is an ARRL organization dedicated to Amateur Radio Emergency Communication through skill and preparedness

The Background...

Pierce County ARES manages local ARES activity, training, exercises, and skill development. Pierce County ARES supports and meets at the Pierce County Emergency Operations Center.

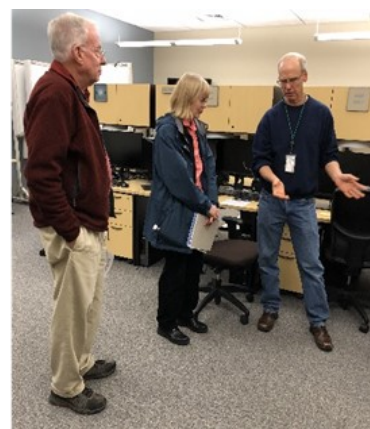
ARES activities: Pierce County ARES training sessions this month included presentations on Power: Battery, Solar, and Generator, and Cross Band Training to resolve various communications link issues.

Pierce County ARES EOC Team provides an orientation to Amateur Radio Support to the Pierce County Emergency Operations Center.



Dave Stark with the County Executive, Bruce Dammeier at the Pierce County Emergency Operations Center Radio Room

Dave stark (PCEOC, Radio Officer) with members of the Steilacoom WA City Council



California Fires: (Excerpts From the current ARRL Newsletter)

Amateur Radio volunteers have been active or are standing by on several fronts as wildfires continue to rage in large sections of California.

Camp Fire

In Butte County, in northern California, the Camp Fire, the state's deadliest wildfire, triggered a call up of Amateur Radio Emergency Service (ARES®) members for communication support. A small wildfire that started in a mountainous area of Butte County quickly grew, due to high winds. Eventually more than 25,000 people were evacuated. As multiple shelters opened to assist evacuees, five [Sacramento Valley ARES](#) groups were called out to support communication between the Red Cross Disaster Operations Center (DOC) and the shelters

The uncontrolled wildfire eventually consumed the town of Paradise, a town of some 27,000 residents. As of November 14, the Camp Fire covered some 145,000 acres (35% contained), killed more than 40 people, and destroyed nearly 8,000 structures. Utilizing mutual assistance, more than 20 ARES members from five ARES groups are supporting the shelters. ARES members have also been tasked by Red Cross to shadow Red Cross delivery vehicles to provide communication in the mountain areas to the shelters.

ARES communication at the shelters has been carried out using voice, *Winlink*, and email to pass shelter counts, and tactical messages between the shelter and the Red Cross Disaster Operations Center and Cal

Office of Emergency Services.

The Red Cross is supporting ARES at the shelters with hot spots and backup radios.

Working 12-hour shifts, Sacramento Valley Section District Emergency Coordinator 3 Michael Joseph, KK6ZGB, has been staffing the Red Cross radio station as net control for the DOC, passing messages and tracking ARES personnel. Sacramento ARES members have been pitching in as needed. Joseph also has been coordinating ARES deployments as needed.

Woolsey Fire

Feinberg said Los Angeles ARES ([ARES LAX](#)) has not been activated because no county hospitals are in the affected area and no hospital outside the fire zone was in danger of losing communication. She added, though, that a sizable team of ARES LAX operators organized by LAX-Northwest District Emergency Coordinator Roozy Moabery, W1EH, did extensive logistics work over the November 10 - 11 weekend at a major drop-off site in the San Fernando Valley for evacuee supplies. ARES team members worked with other volunteers to accept nearly 10 tons of pet food, plus thousands of boxes of items such as soap, toothpaste, toothbrushes, shampoo, conditioner, razors, lotion, feminine care products, and sunscreen, as well as baby food, formula, diapers and wipes, towels and bedding, snacks, and non-perishable food items, Feinberg said.

Coming Events/Training:

(Unless otherwise indicated location is Pierce County Emergency Operations Center)

-On Saturday, 29 December ARES will be participating in the Washington State Emergency Operations Centers Exercise. Pierce County ARES will be focusing on ARES Team objectives and tasks.

-January training sessions will include programs on Field Sanitation, Leadership Seminar, and in February: the program will be on Connectors.

ARES Meetings:

-Pierce County ARES Meets Monthly, at 7 pm on the Third Thursday at the Pierce County Emergency Operations Center. Meetings always have a program, normally an EmComm Training Focus.

-Pierce County District 5 Website: <http://www.piercecountyares.net/web>

-ARES Membership Application: <http://www.piercecountyares.net/web/application>

-ARES Facebook Page: <https://www.facebook.com/groups/PierceCountyARES/files/>

-Washington State Emergency Management: <https://www.facebook.com/WashEMD/>

ARES Information and Communications Plan frequencies:

For ARES Team, EOC frequencies, and other ARES activities you may also use the following W7DK.org Website, using the following link:

http://www.w7dk.org/index.php?option=com_content&view=category&layout=blog&id=46&Itemid=111

Larry Watson, KD4VOM

Pierce County ARES

Kd4vom@mailcan.com

**Radio Club of Tacoma
Board of Directors Meeting Minutes
October 3, 2018**

Meeting called to order at 1854 PDT by Vice President Mike W7XTZ.

Officers and Directors Present

Vice President Mike Mikuchonis W7XTZ

Secretary Mike Finnie W7MWF

Treasurer Steve Dightman AF7YD

Board Bruce Hanson WE7P

Board Paul Matney W7PFU

Board Adam Barbera W2NCC

Board Red Cranefield WB7EC

Board Phil Pia K7PIA

Quorum? A quorum was seated. 13 members signed the attendance roster, a copy of which is filed with these minutes

Silent Key or Illness? None reported

Minutes of September 5, 2018 Board Meeting were approved as circulated.

Secretary's Report Mike W7MWF reported usual Correspondence received: Subscriptions, utility bills, bank statements, dues renewals and new members. Salmon run pledges and donations still coming in.

Treasurer's Report Steve AF7YD reported bills paid and deposits current. Bank account balances are in the positive.

Committee / Reports

Tower Maintenance Nick K7MO reviewed the tower inspection report provided by Joe Her rington in 2016. Three areas of possible maintenance were discussed.

Tower should be painted with cold-galvanizing paint such as Dev-Con

Siting and replacement of guy wires and anchor points should be considered

Weep holes should be drilled at the base of the tower legs

Nick will take care of drilling the weep holes. He will also contact Joe and solicit a bid to paint the tower (sometime in the spring). The issue regarding the guy lines will be considered at future meetings.

Membership George K7GRS advised that we currently have 276 members. He also submitted a report in which the breakdown of different membership categories were populated and the projected revenue potential from each category. A copy of George's report is filed with these minutes.

Training	<ul style="list-style-type: none">-Tech License Training October 6/7-VE Testing next session October 9- License upgrade class (Extra) will be in session on Monday nights through 12/10
Info Tech	Randy WB4SPB reported that all IT systems are A-OK
Nominating Committee	Randy WB4SPB briefed the board that there have been no nominations for any offices from the membership thus far, and he will again solicit nominations at the October 6 General Meeting. Ballots will be mailed by October 20 th and counting will be undertaken at the November 3 General Meeting.
HF Operations	Phil K7PIA reported some transmit problems with the Flex that are being resolved. All other HF ops are functioning as they should be.
Repeater Ops	Ongoing problems with the Bates .21 repeater were noted. Repeater committee has been made aware of the issue.
Facilities Mgmt	<ul style="list-style-type: none">-(W2NCC) Garage bay door replacement is on hold until warmer weather-(W2NCC) Garage man-door has been obtained and in the queue for install-(W2NCC) AED update – test check performed and unit is functional-(W2NCC) Mouse problem in clubhouse-traps will be obtained-Alarm status (ENABLED), additional configuration after door upgrades-Tree trimming – Boughs trimmed in exchange for trimming widow-maker-Stair rail installation – this project will no longer be considered-(N7OMS) Upstairs electric upgrade status – no change still pending crew time
Property Mgmt	Red WB7EC sales report for September was \$353 and raffle was \$56. More sales upcoming and donations being received steadily.
Museum (KR7W)	Randy WB4SPB reported the museum made 24 contacts in the CW Classic Exchange. Some reorganization is being done in the museum to make it more functional.
Weds Workshop	TBA
General Meeting	The presentation for the October meeting will be by Bonnie Altus AB7ZQ who is a candidate for NW Division Director.
Unfinished Business	The Rohn 25 tower (70 feet) will be transported to the clubhouse next week
New Business	<ul style="list-style-type: none">-W2NCC - W7DK.groups.io - an interactive board for non members and club members. This is part of an outreach program to increase club membership. The group board is self service so people can join and quit any time they want. I sent you an invite to the W7DK group so you can see what it looks like. I will ask the board for 110 dollars to upgrade the account.

Activity Reports and Discussion Topics

- (AF7YD) Opportunity to assist Boy Scouts camporee at Ski Lake Park to be held on Oct. 19 – 21
- (AF7YD) Invite local scouts to clubhouse during JOTA event October 20?
- (AF7YD) Follow-up with request from State EOC/Camp Murray for ops assistance?
- (W7MWF) Stephen AD7AB coordinating with Pierce Co EOC for staff license training
- State Fair report – thank you certificate received
- Salmon Run report – a clean sweep and excellent response to pledge drive
- W7WG Worthday Party was attended by over 50 members and a great time was had by all.

Adjournment was at 2028 PDT.

**Radio Club of Tacoma
General Meeting Minutes
October 6, 2018**

Meeting called to order at 1332 PDT by President Dave W7UUU at **the Eagles Aerie #3 Hall**

Officers and Directors Present

President	Dave Ellison W7UUU
Secretary	Mike Finnie W7MWF
Treasurer	Steve Dightman AF7YD
Board	Red Cranefield WB7EC
Board	Phil Pia K7PIA
Board	Adam Barbera W2NCC

Pledge of Allegiance led by Mike W7MWF

Health and Welfare-

Silent Keys and Illness – It was reported that Victor Allison K7VWA member # 2416 joined the ranks of Silent Keys on September 6.

Welcome and Self-

Guests present were Todd (no call) and Bonnie AB7ZQ.

New Calls – none announced

Self-introductions were completed. There were 33 names on the sign in sheet, a copy of which is filed with these minutes.

Secretary's Report - Mike W7MWF reported receipt of the usual correspondence. QSL Cards, Utility bills, periodicals, Salmon Run Pledges and a certificate of appreciation from the Washington State Fair.

Treasurer's Report- Steve AF7YD reports bills paid and deposits are current.

President's Report- Highlights of events or activities over the past month and other notable items and announcements deemed appropriate by the President were reported.

The 100th Birthday Party held on September 30 for Worth W7WG was attended by about 50 members and was a great success.

The 2018 Annual Holiday Banquet will be held December 2nd from 1 until 3 pm at the Eagles Aerie 2933 located at 7037 S PINE ST. TACOMA, WA. Note that this is NOT the facility where we hold our monthly meetings.

Committee / Activity Reports-

Nominating (WB4SPB)- Recap of election process and final call for nominations from floor. No

nominations were forthcoming and the nominations were closed. The slate to be presented will be the incumbents: President Dave W7UUU, Treasurer Steve AD7AB, and Directors Red WB7EC and Phil K7PIA.

Membership- George K7GRS reported membership stands at 276 and that donations thus far from the pledge drive are approximately \$5100.

Training- Tech License Training ongoing this weekend
Next VE session October 9
Extra-class license training by Dave N7HT thru December 10

VE Report - The next VE Session will be held October 9

HF Operations - HF Station Ops reported by Phil K7PIA indicates all equipment functioning normally. Al N7OMS gave an update of upcoming contests.

Repeater Ops- We are still experiencing problems on the Bates .21 repeater. The repeater committee is aware of the issue.

IT Report- Randy WB4SPB reports that the IT system is functioning within the expected parameters.

Museum - Randy WB4SPB provided highlights of the W7OS station participation in the Classic Exchange event. Also, the museum is undergoing reorganization and cleanup of the relics, artifacts, and equipment.

Facilities Mgmt - Adam W2NCC reported that several projects are underway or nearing completion. These include garage doors replacement, tower maintenance, electric panel upgrade, and rodent abatement.

Prop Mgmt- Red WB7EC reported September sales of \$353 and raffle income of \$56. Donations continue to be processed and future sales lists are being populated.

4th Weds Activity Night - Presentation Topic to be determined

New Business

W2NCC – Adam announced the implementation of new message board and invitation.

W7DK.groups.io - an interactive board for non-members and club members. This is part of an outreach program to increase club membership. The group board is self-service so people can join and quit any time they want

AF7YD - Boy Scout Camporee October 19-21 – Call for support both manpower and ARDF equipment.

Unfinished Business and Announcements

State Fair Report – Judged a huge success and the club received a nice certificate from the State Fair

management.

Salmon Run Operations Report – A clean sweep was accomplished and operations went smoothly.

Salmon Run Fund Raising Drive - George earlier reported donations of nearly \$5100 with pledges and payments still trickling in.

Program- The presentation for the October meeting was given by Bonnie Altus AB7ZQ who is a candidate for NW Division Director. She provided an overview of the ARRL organizational structure and also gave her background regarding her involvement with ham radio, the ARRL, and her qualifications for being a candidate for the position of Northwest Director.

Tuning and Traffic - Dave W7UUU announced the formation of the Nostalgic Novice Network Club, KN7NNN! For additional info, talk to Dave or check out the QRZ page for the new club.

Door Prize- The door prize, a cable crimper kit, was won by Kerry KI7LTV

Raffle Prize- The raffle prize, a 6-meter transceiver was won by Jim W7OWI

Adjournment- The meeting was adjourned at 1514 PDT with thanks to Anne and Dave for the hospitality treats.

2018 HOLIDAY PARTY And AWARDS BANQUET

SUNDAY, DECEMBER 2, 2018 1:00pm to 4:00pm

South Tacoma Eagles Aerie #2933

7037 S. Pine St.

NOTE: This is NOT the Eagles Aerie where meetings are held. See pg.3 link to map above.

Radio Club of Tacoma will provide the main Course and sodas.

PLEASE SIGN UP FOR POT LUCK DISHES YOU WILL BRING

THE CLUB LINEUP**CLUB OFFICERS**

President: Dave Ellison, W7UUU - w7uuu@w7dk.org

Vice Pres: Mike Mikuchonis, W7XTZ - w7xtz@w7dk.org

Secretary: Mike Finnie, W7MWF - w7mwf@w7dk.org

Treasurer: Steve Dightman, AF7YD - af7yd@w7dk.org

5 BOARD MEMBERS

Bruce Hanson, WE7P - we7p@w7dk.org

Paul Matney, W7PFU - w7pfu@w7dk.org

Adam Barbera, W2NCC - w2ncc@w7dk.org

Red Cranefield, WB7EC - wb7ec@w7dk.org

Phil Pia, K7PIA - k7pia@w7dk.org

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LOGGER'S BARK STAFF

Editor: P. J. Hicks, N7PH

Contributors: The members of the Radio Club of Tacoma and others

Send articles to: hickspj467@comcast.net, PO Box 11188, Tacoma, WA 98411

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www.w7dk.org.

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MEMBERSHIP INFO: FULL (licensed) and ASSOCIATE (non licensed) is \$35 per calendar year. \$30 for Licensed Seniors (65 and over). Licensed family members at same address pay \$20 each for the first two and are free for the third, fourth, and so on. Full-time students, licensed or non licensed, up to age 25 are \$20 per year. Note: fees are applicable for the calendar year: Jan to Dec. Lifetime membership is 20 times the yearly fee you are eligible for.. Lifetime memberships are calculated based on the FULL and ASSOCIATE rates.

www.w7dk.org - For the latest and most current information on events and activities, visit the Radio Club of Tacoma Website.

RADIO CLUB REPEATERS

Central Tacoma: 147.280 + PL=103.5

Crawford Mountain 147.380 + PL=103.5 (E of Olympia @ 1500 ft. ASL)

Central Tacoma: 440.625 + PL=103.5

North Tacoma: 145.21 – PL=141.3